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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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July 19, 1993

MEMORANDUM

SUBJECT: Potential Actions that would Assist Missouri with the Response to Flooding

FROM: William W. Rice
Acting Regional Administrator

TO: Senior Staff

As you know, on Saturday, July 17, President Clinton, Vice-President Gore and members of the Cabinet met with Governors and other elected representatives from throughout the midwest concerning means by which the Administration can provide both short- and long-term assistance to respond to conditions created by the floods. During that meeting, I had an opportunity to discuss with David Shorr--Director of Missouri's Department of Natural Resources--some specific items that he feels would be most helpful in his state. His preliminary list of action items appears below. I have also attached for your information and use an MDNR paper entitled Environmental Problems Due to Flooding--and Solutions. President Clinton made it clear that the Administration will respond in a rapid, coordinated, and comprehensive manner to the problems created by flooding. It is obvious that we must place a high priority on finding means to assist all of the states in our Region in responding to flood-related environmental issues.

Potential Items to Assist Missouri in Response to the Flood:

The following items were provided by David Shorr on July 17, 1993. The list is likely to be expanded and revised as more information becomes available. It is important to note that the listing is not in priority order.

1. US EPA provides full spectrum testing of the Missouri and Mississippi after the flooding recedes. Testing should include agricultural chemicals such as atrazine, alar; metals; and radioactive materials in certain areas (especially in the St. Louis area). David suggested that John Young should be our initial contact on this topic.

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Superfund

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RECYCLE

2. Extend Sub-Title D for 12 months (more available land fills--better to use these than illegals).

3. Find some way to provide hazardous waste storage for the state--there is a particular need for small quantity materials that have been flooded.

4. Soil testing.

5. Grant to provide for the appropriate disposal of household hazardous waste at centralized locations (large volume of waste due to flood damage).

6. Direct grants to repair/replace/rehabilitate water and waste water plants. (David discussed a number of options for working with the state on this; one option would be to increase the percentage level for the State Revolving Fund (SRF). We need to look closely at how the President's Disaster Relief Funds can be used in conjunction with other state funds--such as those that they receive for Community Development Block Grants--to address infrastructure rehabilitation needs.)

7. Advance funding for the federal Safe Drinking Water Act Revolving Funds.

8. Transfer of surplus federal equipment such as boats that could be used to respond to flooding conditions.

9. Funding to adequately develop a Geographic Information System (GIS) to provide computer digitized information with all the appropriate data layers including roads, streams, rivers, flood plains, locations of water and waste water facilities, hazardous waste facilities, landfills, underground storage tanks, water wells, etc., to facilitate appropriate reactions/decisionmaking ability during emergencies.

There may be some short-term assistance that the Region could provide in this area as well as assisting with development of their longer-term capabilities.

10. Funding to provide adequate ambient water monitoring (both quantity and quality) including appropriate stream gauging.

11. Exemption on the West Alton air monitoring station that had to be moved because of flooding.

12. Deviations from certain items in the current years State-EPA Agreement.

13. Contracts for water testing, portable laboratory space, staffing, sample bottles and material.

14. Hazardous waste assessment teams--one additional team for central Missouri. Federal coverage in Kansas City and St. Louis areas.

15. Assessment of underground storage tank failures. Shorr mentioned that EPA Cincinnati may be able to provide teams and/or software to assist with this topic.

16. Pipe line safety surveys (the Coast Guard may provide this support).

17. US EPA Declaration that key hazardous waste sites have not created problems because of the flood--especially--Weldon Springs and Times Beach.

18. Pollution assessment in two harbors by the Coast Guard.

19. Technical assistance concerning any chemicals used for vector control: Example--if pesticides are used to control mosquitoes, the state will need to understand (and be able to explain to the public) the environmental/public health significance of the chemical use.

Attachment

Environmental Problems Due to Flooding -- and Solutions

Missouri Department of Natural Resources

July 1993

Anticipated Environmental Problems Due to Flooding -- and Solutions

The July 1993 flood of the Midwest has damaged or threatened many aspects of life in Missouri. Intertwined with losses and dangers that immediately come to mind -- those involving human life and property -- are threats to Missouri's environment. In fact, the damage done to the state's land, water, and air resources could potentially compound the danger to Missouri citizens and their belongings.

Fortunately, emergency environmental procedures and logical thinking can minimize danger to flood victims. The following guidelines from the Department of Natural Resources will help Missourians lessen some of the hazards the state faces related to this natural disaster.

The information included is only a general guide. For information on how to address more specific situations not included, local governments should call the department's toll-free emergency helpline, 1-800-222-1300. Citizens should call the State Emergency Management Agency at 1-800-853-3362; or for hazardous waste spills and other environmental emergencies, call the department's Environmental Emergency Response unit at (314) 634-2436.

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Drinking Water

Emergency Disinfecting

The following procedures will destroy the usual bacteria and other microorganisms that may be present in water obtained from a contaminated public water supply system or from alternate emergency sources.

Heat Disinfection (boiling):

1. Strain water through a clean, tightly-woven cloth into a clean container to remove any sediment of floating matter.

2. Boil water vigorously for at least one (1) full minute, preferably three (3) to five (5) minutes.

3. After allowing the water to cool, it is ready to use.

Chemical Disinfection:

1 If boiling is not possible, strain the water as in Step 1 above.

2. Read the disinfectant container label to find the percent of available chlorine in the solution, and determine the number of drops needed to disinfect each quart of water from this table:

Available Chlorine	Drops To Be Added Per Quart	
	Clear Water	Cloudy Water
1 percent	10	20
4 to 6 percent*	2	4
7 to 10 percent	1	2
If not known	10	20

*common household laundry bleach

Mix thoroughly by stirring or shaking water in container. Let stand for 30 minutes. A slight chlorine odor should be detectable in the water; if not, repeat the dosage and let stand an additional 15 minutes before using. Water is safe to use.

Water Storage:

Water purified by either boiling or chemical disinfection should be stored in clean, non-corrodible, tightly covered containers.

Guidelines for Restoring Drinking Water Supply

In the event of a water outage, the following precautions should be used prior to using the water for consumption when normal water service has been restored:

1. Flush out all water pipes in the home, starting nearest the point where the waterline enters the building;

2. Allow water to run until it is clear; if the water doesn't become clear, do not use for consumption;

3. Disinfect the water either by boiling or with chemicals (see recommended procedures); and

4. Contact your public water supplier for further information and consult the local news media for notification when any health advisory has been lifted.

Guidelines for Preparing Tank Trucks for Transporting Potable Water

The following procedures are guidelines for using tank trucks or trailers to provide potable water during emergency conditions. The appropriate Department of Natural Resources' regional office should be contacted before a water hauling operation is begun. (See last page of this guide.)

Selection

Tank trucks or trailers to be used for transporting potable water should be selected with two considerations in mind: the nature of the truck's normal use and the degree of difficulty in cleaning it before filling with water. Commercial milk or potable water tank trucks are preferred. Trucks designed for the transport of wine, vegetable oil, beer, or other food products may also be used. Trucks that have been used to haul petroleum products or other toxic substances are generally not acceptable and may be used only with the department's approval.

Cleaning Procedures

Water trucks: Flush tanks thoroughly with potable water and inspect for particulate matter such as rust and sediment.

Milk trucks: Scrub tanks with detergent, flush thoroughly with potable water, and inspect for cleanliness.

The following cleaning procedures should be used for tank trucks that normally transport such liquids as fruit juices, vinegar, wine, yeast, liquid sugar, beer, corn syrup, cottonseed oil, peanut oil, margarine oil, linseed oil, safflower oil, and soybean oil:

1. Open the drain and flush with hot, potable water.

2. Steam with an emulsifying detergent until the tank is clean. If steam is not available, circulate the detergent at 180 degrees to 210 degrees Fahrenheit, changing the location of the nozzle to keep the interior continuously wet from top to bottom. Repeat this procedure until the tank is clean.

3. Rinse the tank thoroughly with hot, potable water and drain.

All hoses should be stored off the ground and should be properly capped in storage and transit to prevent contamination. All equipment should be approved for water supply purposes and should be new or obtained from a water supply application. All hoses, pumps and other equipment should be flushed and disinfected before use.

Disinfection Procedures

Disinfection can be accomplished by filling the clean tank with potable water containing at least 50 parts per million (ppm) chlorine and allowing the water to stand for a minimum of 24 hours. The table below indicates the amount of hypochlorite solution (Purex, Clorox, or other household bleach) required to produce 50 ppm in various quantities of water. To ensure proper mixing, the bleach must be added slowly as the tank is filled.

Tank Capacity (Gallons)	Gallons of bleach Required for 50ppm*
500	1/2
1,000	1
1,500	1 1/2
2,000	2
2,500	2 1/2
3,000	3
3,500	3 1/2
4,000	4
4,500	4 1/2
5,000	5

*Assumes household bleach with five (5) percent available chlorine.

If circumstances preclude the 24-hour waiting period, special instructions for disinfecting the tank with higher chlorine concentrations for shorter periods of time can be obtained from the Department of Natural Resources.

Filling Procedure

The source of water must be an approved public water supply. Tanks should be filled and emptied through an air gap to prevent backflow and contamination of the source. Tank inlets or openings should be covered and properly sealed.

Water to be transported via tank truck must carry a free chlorine residual of one (1) ppm at the beginning of each haul. This may be achieved by adding one (1) cup of household bleach to each 1,000 gallons of water. The bleach should be added during filling to ensure uniform distribution.

Testing

Chlorine residual should be measured frequently to ensure that a minimum of 0.1 ppm free chlorine residual is maintained. If time allows, tank water should be analyzed for bacterial contamination prior to use.

Solid Waste

Yard debris

The Solid Waste Management Program recognizes the need for flexibility in waste disposal options during emergency situations. Therefore, flood debris collected as a result of July 1993 flood cleanup activities will not be considered yard waste and may be disposed of in sanitary landfills.

Yard debris resulting from the flood of July 1993 should be disposed of at sanitary landfills with a minimum of handling.

Buildings And Other Water-Damaged Items

Building debris and personal property should be properly disposed of in a permanent demolition landfill.

Major Appliances

The department encourages local communities to collect appliances at a single location for collection by scrap dealers. Contact a scrap metal dealer or businesses that accept major appliances that have been in flood waters for recycling.

Tires

Tires may be disposed of in landfills provided they are cut in half, either laterally or circumferentially, with sidewalls removed. Chipped or shredded tires also may be disposed of directly in landfills.

Recycling

Normally recyclable materials -- such as steel cans, plastic containers, glass bottles, or packaging that wash up from the flood -- are probably contaminated and water damaged and are not recyclable in this condition.

Fees For Disposal At Landfills

The Department of Natural Resources does not regulate disposal fees. If your clean-up team inquires about disposing of flood debris free-of-charge at a landfill, contact your city or county officials, your local landfill or your solid waste management district for financial arrangements regarding local clean-up projects.

Water Pollution

Municipal Sewage Systems
Bypassing (i.e. release of untreated or inadequately treated sewage) from treatment facilities, pumping stations or manholes.

Sewage or flood water backup into basement, dwellings or other buildings.

Days to weeks of discharge of untreated or inadequately treated sewage after the flood waters recede while damaged facilities are being cleaned, repaired and returned to service. Costs of these activities can be very high.

Industrial Wastewater System
Release of inadequately treated or untreated wastewaters.

Individual On-site Systems
Inundation by flood water of septic tanks or of other on-site system (waste stabilization pond, seepage field or aeration unit).

Failure of building plumbing to carry away wastewater.

Surface Water Conditions
Flooded rivers and streams, inundated flood plains and low-lying areas. Water moves swiftly,is highly turbid (muddy) and carries debris. Rivers and streams contaminated with sewage, animal wastes and other contaminants washed away by high water levels.

Agricultural Operations
Loss of crops.

Serious erosion of topsoil and damage to erosion or flood-control structures such as terraces or levies.

Release or wash-off of manure and other livestock or poultry wastes.

Mosquito Spraying
Mosquito and other insect problems are more pronounced than normal during and after floods in floodplain areas. Petroleum products and insecticides use are not recommended to kill mosquitos. The use of these products will kill mosquitos, but will also kill beneficial insects such as dragon and damsel flies, which prey on mosquitos.

To minimize insect problems caused by dead animals, carcasses should be disposed of using any of the following accepted methods: rendering, composting, disposal in a sanitary landfill, commercial incineration, or noncommercial incineration. For more information, contact the Missouri Department of Agriculture at 1-800-347-1178.

Recommendations to the Public

Stay out of flood waters; do not swim, wade, "tube" or have other recreational contact.

Avoid recreational boating on rivers and streams not in flood stage.

Vacate buildings if electric, gas, drinking water and wastewater systems are not working due to flood conditions.

If contact with flood waters is unavoidable, shower or bathe with soap afterwards.

If you are wounded while working in flood waters, contact your doctor and determine the need for tetanus inoculation .

After flood waters recede, wash flooded buildings with clean water and detergent and thoroughly check and clean natural gas, electric, drinking water and sewage disposal appliances or systems prior to placing back into service.

Hazardous Waste

Damaged or Unusable Household Products

Homeowners returning to their homes after flood waters recede may find household products that are damaged or unusable. Waste derived from households are not regulated by state or federal hazardous waste laws and regulations when properly managed.

Some of this waste may be disposed of in a permitted sanitary landfill with the landfill operator or owner's permission. It may be possible to dispose of some wastes into the public sewer system.

Recommendations to the Public

Extreme precaution should be used when cleaning up products in leaking or damaged containers. Wear rubber gloves and avoid breathing any fumes or dust. Do not work around these damaged products in confined or poorly ventilated areas.

If you find drums or other containers floating in streams or flooded areas, call the department's Environmental Emergency Response office at (314) 634-2436.

Drums, Underground Storage Tanks and Propane Tanks

Most tanks are anchored and will not pop up. These tanks are filled with a product and sealed; vent lines also are sealed.

If a propane tank has floated away, the gas company owning the tank or distributing gas should be able to identify the tank and location from where it came. Propane tanks have serial numbers on their welds that also help identify owners and locations.

Recommendations to the Public

If fuel surfaces from the vent line of an underground storage tank, seal the vent line, if possible.

Most drums that remain when flood waters recede are open burn barrels, trash barrels, or dock barrels. **Sealed drums with unknown contents should not be handled by untrained persons.** If you find drums that are sealed, report them to the department's Emergency Response Unit at (314) 634-2436.

Most ammonia fertilizer tanks are on wheels and can be pulled to higher ground. Any tanks that have floated away should be identified and moved by the originating farm coop store.

Air Pollution

Burning Yard Waste from the Flood

The landfill prohibition on yard waste has been temporarily lifted for disposal of debris from the flood. When landfill disposal is not possible, debris may be burned after it has dried out. (Drying could take as long as a month.) Any burning should take place between 10 a.m. and 4 p.m., the optimum time for dispersion of pollutants.

Burning Structural Debris from the Flood

Out-state open burning regulation allows private citizens to open burn as long as the waste is generated on their own property. Although structural debris from the flood may be burned, citizens should be extremely careful not to burn hazardous materials that could cause dangerous, toxic emissions. These include treated or painted wood, plastics, and asbestos siding or shingles, among others. All burning should take place between 10 a.m. and 4 p.m.

Odors from the Flood

Because of the flooding there also will be increased odors in the affected areas. Most of the odors will be the result of rotting vegetation -- not necessarily sewage or petroleum -- and could take several weeks to dissipate. These odors, while displeasing, are not harmful. However, do not mistake natural gas, propane, or other potentially hazardous fumes for rotting vegetation odors. In the case of gas or other potentially hazardous leaks, immediately notify the appropriate emergency personnel.

Additional Contact Phone Numbers

The Department of Natural Resources realizes that the July 1993 flood will spawn environmentally-related problems not specifically mentioned in this guide. As always, staff are available to give technical assistance on those issues brought to their attention. For more information on the following concerns, call department staff at the numbers listed*:

Local Government Environmental Helpline	**1-800-222-1300**
Air Pollution Control	(314) 751-4817
Hazardous Waste	(314) 751-3176
Land Reclamation	(314) 751-4041
Public Drinking Water	(314) 751-5331
Soil and Water Conservation	(314) 751-4932
Solid Waste Management	(314) 751-5401
Water Pollution Control	(314) 751-1300

***Environmental Emergencies should be reported to (314) 634-2436.**

The map on the following page shows the regions for the Department of Natural Resources' Division of Environmental Quality, as well as their addresses and phone numbers.

Other State Agencies

State Emergency Management Agency	
General flood information	1-800-853-3362
Teleregistration for federal assistance	1-800-462-9029
Department of Agriculture	1-800-347-1178
Department of Health	(314) 751-6750 or 751-6170

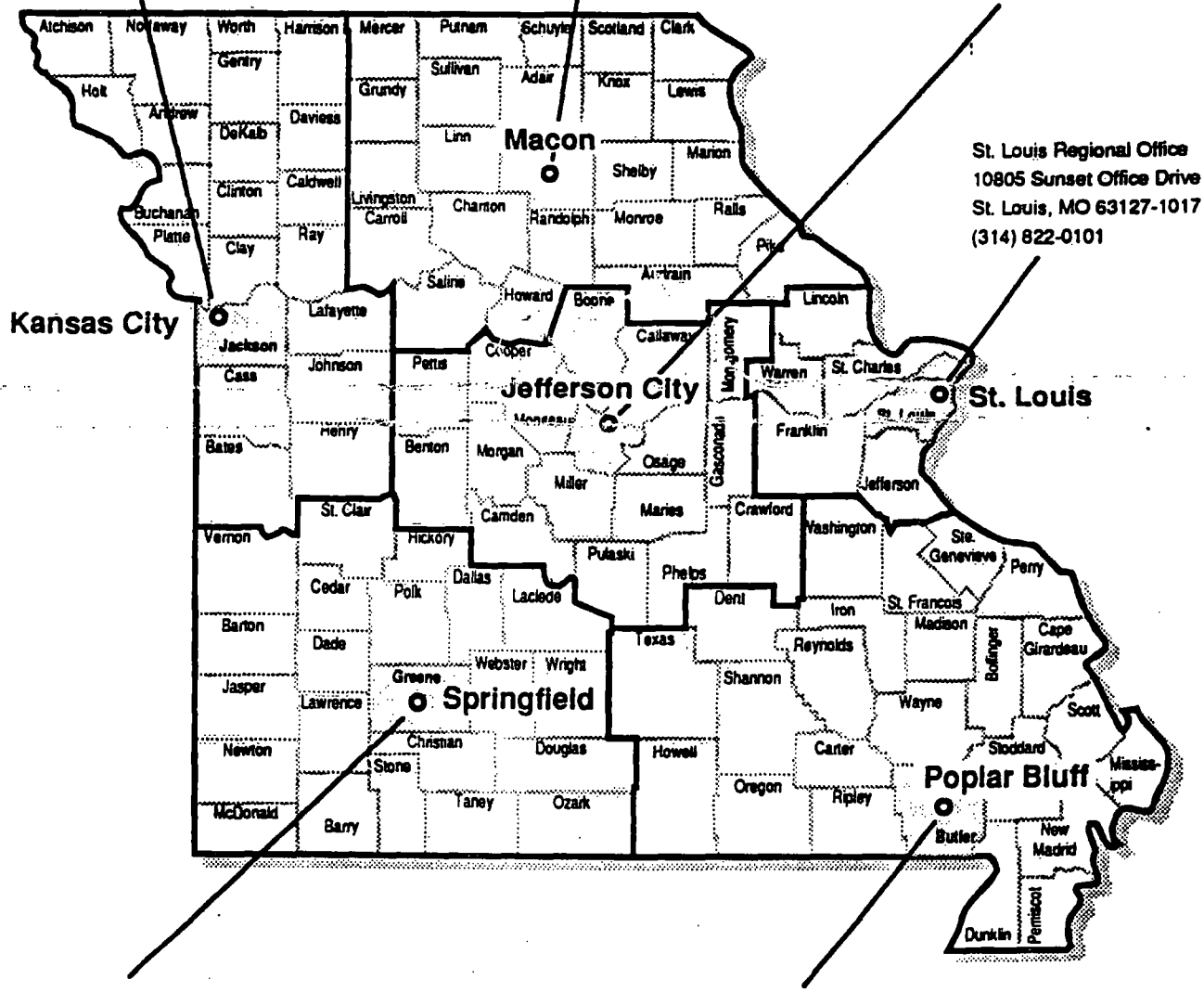
MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY REGIONAL OFFICES

Kansas City Regional Office
3800 South Elizabeth Avenue, Suite G
Independence, MO 64057-2652
(816) 795-8655

Northeast Regional Office
Highway 63 North – 1307 Jackson
Macon, MO 63552-1930
(816) 385-2129

Jefferson City Regional Office
1908 Bubba Lane
P.O. Box 176
Jefferson City, MO 65102-0176
(314) 751-2729

St. Louis Regional Office
10805 Sunset Office Drive
St. Louis, MO 63127-1017
(314) 822-0101



Southwest Regional Office
318 Park Central East, Suite 500
Springfield, MO 65806-2218
(417) 895-6950

Southeast Regional Office
948 Lester Street
P.O. Box 1420
Poplar Bluff, MO 63901-1420
(314) 840-9750